

CLAIMS

1. A polar-group-containing cyclized rubber, having a polar group at a terminal of a polymer chain thereof and having a weight-average molecular weight of 1,000 to 1,000,000.
2. The polar-group-containing cyclized rubber according to claim 1, wherein the ratio of the weight-average molecular weight (Mw) to the number-average molecular weight (Mn) thereof (Mw/Mn) is 4 or less.
3. The polar-group-containing cyclized rubber according to claim 1 or 2, wherein a cyclization ratio is 10% or more.
4. The polar-group-containing cyclized rubber according to any one of claims 1 to 3, wherein a glass transition temperature is from -50 to 200°C.
5. The polar-group-containing cyclized rubber according to any one of claims 1 to 4, wherein a gel amount is 10% or less by weight.
6. The polar-group-containing cyclized rubber according to any one of claims 1 to 5, wherein the polar group is at least one group selected from the group consisting of carboxyl, hydroxyl, amino, thiol, ester, cyano and silyl groups.
7. The polar-group-containing cyclized rubber according to

any one of claims 1 to 6, wherein the polar group is carboxyl or hydroxyl group.

8. A process for producing a polar-group-containing cyclized rubber, comprising: the steps of:

using an organic active metal catalyst to polymerize a conjugated diene monomer, or a conjugated diene monomer and a monomer copolymerizable with the conjugated diene monomer to produce an active conjugated diene polymer having an active metal at a terminal of a polymer chain thereof;

causing a polar-group-containing compound to react with the active conjugated diene polymer to produce a polar-group-containing conjugated diene polymer having, at a terminal of a polymer chain thereof, a polar group originating from the polar group in the polar-group-containing compound; and

using a cyclizing catalyst to cyclize the polar-group-containing conjugated diene polymer to produce the polar-group-containing cyclized rubber.

9. The process for producing a polar-group-containing cyclized rubber according to claim 8, wherein the conjugated diene monomer is isoprene.

10. The process for producing a polar-group-containing cyclized rubber according to claim 8 or 9, wherein the polar-group-containing compound is an epoxy compound or carbon

dioxide.

11. A process for producing a polar-group-containing cyclized rubber, comprising: the steps of:

using a polar-group-containing organic active metal catalyst to polymerize a conjugated diene monomer, or a conjugated diene monomer and a monomer copolymerizable with the conjugated diene monomer to produce a polar-group-containing conjugated diene polymer having a polar group at a polymerization initiation terminal thereof; and

using a cyclizing catalyst to cyclize the polar-group-containing conjugated diene polymer to produce the polar-group-containing cyclized rubber.

12. The process for producing a polar-group-containing cyclized rubber according to claim 11, wherein the polar-group-containing organic active metal catalyst is an organic alkali metal amide compound.

13. The process for producing a polar-group-containing cyclized rubber according to claim 11 or 12, wherein the conjugated diene monomer is isoprene.

14. A modifier for polymer-molding material, which comprises, as an effective component, the polar-group-containing cyclized rubber according to any one of claims 1 to 7.

15. A polymer composition, wherein the modifier for polymer-molding material according to claim 14 is incorporated into a polymer-molding material.

16. The polymer composition according to claim 15, wherein the incorporated amount of the modifier for polymer-molding material is from 0.1 to 50 parts by weight for 100 parts by weight of the polymer in the polymer-molding material.

17. The polymer composition according to claim 15 or 16, wherein the polymer in the polymer-molding material is a hydrocarbon thermoplastic resin.

18. A coating agent, which comprises the polar-group-containing cyclized rubber according to any one of claims 1 to 7.

19. The coating agent according to claim 18, which is for hydrocarbon thermoplastic resin.

20. The coating agent according to claim 18 or 19, which is a primer.